

**Notice of Allowability**

Application No.

10/652,674

Applicant(s)

SASSON ET AL.

Examiner

Juan A. Torres

Art Unit

2611

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Request for Continued Examination (RCE) filed on 09/18/2007.
2. ☒ The allowed claim(s) is/are 1-6 and 8-14 (renumbered 1-13).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/27/2007 has been entered.

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Steve S. Shaw on 09/19/2007.

The application has been amended as follows:

- a) In line 12 of claim 1 the recitation "re-estimating" is changed to "blindly re-estimating"
- b) In line 6 of claim 5 the recitation "estimated" is changed to "blindly estimated"
- c) In line 10 of claim 5 the recitation "estimated" is changed to "blindly estimated"
- d) In line 22 of claim 8 the recitation "cancel" is changed to "blindly cancel"

***Allowable Subject Matter***

Claims 1-6 and 8-14 (renumbered 1-13) are allowed.

The following is an examiner's statement of reasons for allowance: Claims 1-6 and 8-14 (renumbered 1-13) are allowed because a comprehensive search of prior art failed to teach, either alone or in combination, a blind method of compensation in a digital domain for frequency complex up-conversion phase and gain impairments in an up/down conversion transceiver, the method comprising estimating gain and phase imbalance parameters in receive mode during transceiver power-up, digitally canceling the receive mode gain and phase imbalance in response to the estimated parameters, switching the transceiver to transmit mode subsequent to cancellation of the receiver gain and phase imbalance, transmitting a useful signal back into the receiver via the transceiver transmitter subsequent to switching to the transmit mode, blindly re-estimating gain and phase imbalance parameters subsequent to transmission of the useful signal back into the receiver, and generating transmit mode gain and phase impairments there from, and digitally canceling transmit mode gain and phase imbalance in response to the estimated impairments; and a up/down conversion transceiver comprising a receiver operating at a local oscillator frequency, comprising an analog down converter operational in association with a plurality of A/D converters to generate in-phase signals and quadrature signals in response to passband RF input signals, a digital gain equalizer operational in response to the in-phase and quadrature signals to cancel a estimated receive gain error when the transceiver is in receive mode and further operational to estimate a transmit gain error when the transceiver is in

Art Unit: 2611

transmit mode, a digital phase estimator operational in response to the in-phase and quadrature signals to generate a estimated receive phase error when the transceiver is in receive mode and further operational to estimate a transmit phase error when the transceiver is in transmit mode, a receiver digital phase equalizer operational to cancel the estimated receive phase error, and a transmitter operating at the local oscillator frequency, wherein the receiver and transmitter, independently of one another, are each configured to digitally cancel its respective gain and phase impairments, as the applicant has claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is 571-272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres  
09-19-2007

  
**MOHAMMED GHAYOUR**  
**SUPERVISORY PATENT EXAMINER**